UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/633,776	08/04/2003	Michael Cohen	302961.01	6910

7590 12/21/2006

Katrina A. Lyon
LYON & HARR, LLP
Suite 800
300 Esplanade Drive
Oxnard, CA 93036

EXAMINER	
BECKER, SHASHI KAMALA	
ART UNIT	**PAPER NUMBER**
2179	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/21/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/633,776	COHEN ET AL.	
	Examiner	Art Unit	
	Shashi K. Becker	2179	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 August 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-38* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-38* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *04 August 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *8/4/03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claim 36 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicant does not reasonably convey how the paint brush is scaled according to how the source image is scaled.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claim 28 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The limitation "computer-readable medium" is directed to non-statutory subject matter, which is described in the specification (1st paragraph page 11) as, "other data in a modulated data signal such as a carrier wave or other transport mechanism and includes any information delivery media. The term "modulated data signal" means a signal that has one or more of its characteristics set or changed in such a manner as to encode information in the signal."

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claim 1, 4, 7-13, 16, 18-23, 28, 29, and 30-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over "Photoshop 3," by Dayton et al (hereinafter Dayton), in view of Xu, US 2003/0210407.

- In regards to claims 1, 16, 28 and 29, Dayton teaches a computer-implemented process, a system, computer-readable medium, and a graphical user interface for creating a composite image, comprising using a computer to perform the following process actions: applying one or more filters to the image stack to create one or more new intermediate images (pg. 54); selecting one of the original images in the image stack or an intermediate image as a source

image (pg. 54); and selecting pixels from the source image to be added to a composite image to create a final composite image (pg. 54). However, Dayton does not specifically teach inputting an image stack comprising a stack of original images, wherein the pixel position of each original image in the image stack is defined in a three dimensional coordinate system, and wherein two dimensions describe the dimensions of each image in the image stack, and the third dimension describes the time an image was captured.

Xu teaches an image processing method, system and apparatus. Xu further teaches inputting an image stack comprising a stack of original images, wherein the pixel position of each original image in the image stack is defined in a three dimensional coordinate system, and wherein two dimensions describe the dimensions of each image in the image stack, and the third dimension describes the time an image was captured (page 2 paragraphs [0027]-[0031]). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method and apparatus of Dayton to include the time of image capture in order to create three dimensions. One would have been motivated to make such a combination in order to create a three dimensions, one based on time of image capture.

- In regards to claims 4 and 19, Dayton teaches wherein said process action of applying a filter comprises applying a median filter that returns the median pixel luminance along a span of the image stack, wherein a span is a set of image pixels at the same location in all images of the image stack (pg. 140).

- In regards to claims 7 and 20, Dayton teaches, wherein said process action of applying a filter comprising applying a maximum luminance filter that returns the pixel with the maximum luminance along a span of the image stack, wherein a span is the set of image pixels at the same location in all images of the image stack (pg. 140).
- In regards to claims 8 and 21, Dayton teaches wherein said process action of applying a filter comprises applying a maximum contrast filter that returns the pixel that has the highest contrast in a small neighborhood around it along a span of the image stack, wherein a span is the set of image pixels at the same location in all images of the image stack (pg. 76).
- In regards to claim 9, Dayton teaches wherein said small neighborhood is 5 by 5 pixels (pg. 83).
- In regards to claims 10, Dayton teaches wherein said process action of applying a filter comprises applying a temporal smoothing filter that returns a weighted blend of a current image and the images before and after it, for a given span of the image stack, wherein a span is the set of image pixels at the same location in all images of the image stack (pg 139).
- In regards to claim 11, Dayton teaches wherein said process action of applying a filter comprises applying a temporal sharpening filter that returns a pixel in the current image modified by the difference of the pixels in the images before and after the current image for a given span of the image stack, wherein a

span is the set of image pixels at the same location in all images of the image stack (pg 136).

- In regards to claim 12, Dayton teaches wherein said process action of applying a filter comprises applying a high dynamic range filter that combines different exposures over a span of the image stack, wherein a span is the set of image pixels at the same location in all images of the image stack (pg. 76).
- In regards to claim 13, Dayton teaches wherein the high dynamic range filter extracts exposure information associated with the original images that comprise the image stack (pg. 76).
- In regards to claim 18, Dayton teaches wherein said module to apply a filter applies a high dynamic range luminance filter that comprises sub-modules to: compute a radiance value for each pixel in said image stack; map the radiance value for each pixel to its luminance value by mapping red, green and blue channels to a display to match the luminance (pg. 76).
- In regards to claim 22, Dayton teaches wherein said module to apply a filter applies a high dynamic range filter that comprises sub-modules to: compute a radiance value for each pixel in said image stack; map the radiance values for each pixel back to a set of display values via a tone-map (pg. 76).
- In regards to claim 23, Dayton teaches wherein said tone-map is user-defined (pg. 76).

- In regards to claim 30, Dayton teaches wherein said user creates said intermediate image by applying at least one filter to the image stack and users said intermediate image as a source image (pg. 54).
- In regards to claim 31, Dayton teaches wherein parts of said source image are transferred to said composite image by transferring pixels from the source image to the composite image (pg. 54).
- In regards to claim 32, Dayton teaches wherein said transfer of pixels from said source image to said composite image is based on a one-to-one correspondence regardless of whether the user initiates pixel transfer from the source image or the composite image (pg. 83).
- In regards to claims 33 and 35, Dayton teaches further comprising a paintbrush function that transfers some pixels from said source image to said composite image (pg. 176).
- In regards to claim 34, Dayton teaches wherein a radius of pixel transfer is user-defined (pg. 83 and 140).
- In regards to claim 36, Dayton teaches wherein scaling the source image or the composite image scales paint brush function (pg. 76).
- In regards to claim 37, Dayton teaches wherein a highest resolution image available is used when transferring pixels using the paintbrush function even when the source image or composite image is scaled (pg. 35).

8. Claims 2, 5, and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dayton and Xu as applied to claims 1, 4, 7-13, 16, 18-23, 28, 29, and 30-37 above, and further in view of Wise et al (hereinafter Wise), US Patent 6130676

- In regards to claim 2, Dayton and Xu teach the above limitations in the claims above (see claims 1, 4, 7-13, 16, 18-23, 28, 29, and 30-37 *supra*). However, Dayton and Xu do not specifically teach wherein the process action of inputting an image stack comprises inputting an image stack wherein said original images are defined in a Cartesian coordinate system.

  Wise teaches an image composition system and process using layers. Wise further teaches wherein the process action of inputting an image stack comprises inputting an image stack wherein said original images are defined in a Cartesian coordinate system (Figure 8). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method and apparatus of Dayton and Xu in order to include images defined in a Cartesian coordinate system to be easily understood. One would have been motivated to make such a combination in order to allow all users to easily understand how the images are stacked according to a familiar coordinate system.

- In regards to claim 5, Dayton and Xu teach the above limitations in the claims above (see claims 1, 4, 7-13, 16, 18-23, 28, 29, and 30-37 *supra*). However, Dayton and Xu do not specifically teach wherein said process action of applying a filter comprises applying a maximum histogram filter that returns the pixel with the minimum sum of squared distances in red, green, blue color space

to all other pixels along a span of the image stack, wherein a span is the set of image pixels at the same location in all images of the image stack.

Wise teaches an image composition system and process using layers. Wise further teaches wherein said process action of applying a filter comprises applying a maximum histogram filter that returns the pixel with the minimum sum of squared distances in red, green, blue color space to all other pixels along a span of the image stack, wherein a span is the set of image pixels at the same location in all images of the image stack (column 5 lines 1-14). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method and apparatus of Dayton and Xu to include a histogram filter that returns the pixel with the minimum sum of squared distances in red, green, blue color space in order to maximize color levels. One would have been motivated to make such a combination in order to make a customized color palette.

- In regards to claim 5, Dayton and Xu teach the above limitations in the claims above (see claims 1, 4, 7-13, 16, 18-23, 28, 29, and 30-37 *supra*). However, Dayton and Xu do not specifically teach wherein said process action of applying a filter comprises applying a minimum histogram filter that returns the pixel with the minimum sum of squared distances in red, green, blue color space to all other pixels along a span of the image stack, wherein a span is the set of image pixels at the same location in all images of the image stack.

Wise teaches an image composition system and process using layers. Wise further teaches wherein said process action of applying a filter comprises applying a minimum histogram filter that returns the pixel with the minimum sum of squared distances in red, green, blue color space to all other pixels along a span of the image stack, wherein a span is the set of image pixels at the same location in all images of the image stack (column 5 lines 1-14). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method and apparatus of Dayton and Xu to include a histogram filter that returns the pixel with the minimum sum of squared distances in red, green, blue color space in order to minimize color levels. One would have been motivated to make such a combination in order to make a customized color palette.

9. Claims 3 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dayton and Xu as applied to claims 1, 4, 7-13, 16, 18-23, 28, 29, and 30-37 above, and further in view of Jodoin et al (hereinafter Jodoin), US Patent 5493419.

- In regards to claim 3, Dayton and Xu teach the above limitations in the claims above (see claims 1, 4, 7-13, 16, 18-23, 28, 29, and 30-37 *supra*). However, Dayton and Xu do not specifically teach wherein said process action of applying a filter comprises applying a slice filter wherein said filter returns an image in said image stack.

Jodoin teaches stack filters for 1-to-N bit image processing in electronic printers. Jodoin further teaches wherein said process action of applying a filter comprises

applying a slice filter wherein said filter returns an image in said image stack (Abstract). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method and apparatus of Dayton and Xu to include a slice filter. One would have been motivated to make such a combination in order to use the filter to better format the image.

- In regards to claim 17, Dayton and Xu teach the above limitations in the claims above (see claims 1, 4, 7-13, 16, 18-23, 28, 29, and 30-37 *supra*). However, Dayton and Xu do not specifically teach wherein said module to apply a filter applies a slice (x,y) filter wherein for each (x, y) said filter returns a pixel at depth z from said image stack..

  Jodoin teaches stack filters for 1-to-N bit image processing in electronic printers. Jodoin further teaches wherein said module to apply a filter applies a slice (x,y) filter wherein for each (x, y) said filter returns a pixel at depth z from said image stack (Abstract). It would have been obvious for the same reasons stated above (see claim 3 *supra*).

10. Claims 14, 26,and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dayton and Xu as applied to claims 1, 4, 7-13, 16, 18-23, 28, 29, and 30-37 above, and further in view of Okamoto et al (hereinafter Okamoto), US Patent 5754618.

- In regards to claims 14 and 26, Dayton and Xu teach the above limitations in the claims above (see claims 1, 4, 7-13, 16, 18-23, 28, 29, and 30-37 *supra*). However, Dayton and Xu do not specifically teach wherein said process action of

applying a filter comprises applying a surface filter that operates on a given surface through the image stack.

Okamoto teaches an image processing apparatus and method for favorably enhancing continuous boundaries, which are affected by noise. Okamoto further teaches said process action of applying a filter comprises applying a surface filter that operates on a given surface through the image stack (column 19 lines 12-21). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method and apparatus of Dayton and Xu to include a surface filter in order to filter via surface of the image. One would have been motivated to make such a combination in order to use the filter to better format the image.

- In regards to claim 27, Dayton and Xu teach the above limitations in the claims above (see claims 1, 4, 7-13, 16, 18-23, 28, 29, and 30-37 *supra*). However, Dayton and Xu do not specifically teach wherein said surface embedded in the image stack is user-defined.

Okamoto teaches an image processing apparatus and method for favorably enhancing continuous boundaries, which are affected by noise. Okamoto further teaches wherein said surface embedded in the image stack is user-defined (Abstract). It would have been obvious for the reasons stated in the above claim (see claims 14 and 26 *supra*).

11. Claims 15, 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dayton and Xu as applied to claims 1, 4, 7-13, 16, 18-23, 28, 29, and 30-37 above,

and further in view of Chuang et al (hereinafter Chuang), "Video Matting of Complex Scenes".

- In regards to claims 15, 24, and 25, Dayton and Xu teach the above limitations in the claims above (see claims 1, 4, 7-13, 16, 18-23, 28, 29, and 30-37 *supra*). However, Dayton and Xu do not specifically teach wherein said process action of applying a filter comprises applying a mat filter that produces a mat of a given portion of the image stack, wherein the mat is an image of transparency values that will modify the source image when it is used for creating said composite image.

  Chuang teaches video matting of complex scenes. Chuang further teaches wherein said process action of applying a filter comprises applying a mat filter that produces a mat of a given portion of the image stack, wherein the mat is an image of transparency values that will modify the source image when it is used for creating said composite image (page 1, introduction). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method and apparatus of Dayton and Xu to include a mat filter to manipulate the background and foreground. One would have been motivated to make such a combination in order to use the filter to better format the image.

12. Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dayton and Xu as applied to claims 1, 4, 7-13, 16, 18-23, 28, 29, and 30-37 above, and further in view of Funayama et al (hereinafter Funayama), US Patent 6389155.

- In regards to claim 38, Dayton and Xu teach the above limitations in the claims above (see claims 1, 4, 7-13, 16, 18-23, 28, 29, and 30-37 *supra*). However, Dayton and Xu do not specifically teach further comprising a paint brush function that transfers all pixels associated with a face from said source image to said composite image when said paint brush function is used to select a portion of said face.

Funayama teaches an image processing apparatus. Funayama further teaches further comprising a paint brush function that transfers all pixels associated with a face from said source image to said composite image when said paint brush function is used to select a portion of said face (Figure 4). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method and apparatus of Dayton and Xu to include transferring all pixels associated with a face from said source image to said composite image when said paint brush function is used to select a portion of said face in order to select a portion of the face. One would have been motivated to make such a combination in order to better format the image.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Yamazoe et al teaches an image processing method, system and apparatus and storage medium. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shashi K. Becker whose telephone number is 571-272-8919. The examiner can normally be reached on Mon-Fri 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Weilun Lo can be reached on 571-272-4847. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SKB

BA HUYNH
PRIMARY EXAMINER